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An Analysis Of Flipped Learning In English-Medium Courses: A Health Education Case Study

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Abstract: The flipped learning technique has been described as a beneficial tool for enhancing students' varied skills, including social, intellectual, and social skills, in courses employing English as a teaching medium, such as health education. As a result, this study investigates the contribution of flipped learning strategies in medical disciplines, as well as their effectiveness and challenges in health education. Up until 2021, a literature search was carried out in databases such as Web of Science, Scopus, and other sources. All studies that investigators had access to were included. In total, seventeen papers were considered in the literature review. Overall, the findings demonstrated that flipped learning strategies improve the health education environment. Furthermore, the suggestions were highlighted. The majority of the investigations were also conducted with undergraduate students, according to the findings. Flipped learning practices are an effective learning strategy in the classroom, according to this literature review.

Keywords: Flipped learning, English-medium courses, health education, learning environment, technology, University, skills.

1. Introduction

The flipped learning technique is seen as a beneficial tool in health education for enhancing a variety of abilities. This study focuses on the role of flipped learning in courses that use English as the medium of teaching, especially in health education. The ability of the academic model to equip university learners with the acquisition of thinking abilities and all the necessary skills that will be invaluable for their future professional development has been underlined by university reforms (Jdaitawi, 2020).Medical educators strive for active teaching skills, critical thinking, good humanitarian leadership, and practical skills because of the unique aspects of medical education (Duijn, Welink, Bok, and Ten, 2018).Current trends in medical education require learners to develop medical knowledge, medical thinking, and scientific research skills (Duijn et al., 2018). Therefore, it is

imperative for educators to develop a curriculum that will enable learners to acquire the necessary skills. Academics have attempted to change the learning environment by shifting the focus from teachers to learner participation (Bansal et al., 2020). In recent decades, internet-based technologies and applications have entered many aspects of our lives, including education (Uzunboylu and Karagozlu, 2015). Currently, various teaching methods are used to respond to dynamic and ongoing social changes and the development of science and technology (Sojayapan and Khlaisang, 2018).

However, according to McLaughlin, et al. (2016), flipped learning is one of the most popular learning methods as a result of technological and educational improvements. The flipped learning strategy is viewed as a beneficial contribution to teaching and learning in the pedagogical context, the world of learning, while improving learner learning products (Rathner&Schier, 2020; Akcayir and Akcayir, 2018; Jdaitawi, 2020).Returning to the classroom has been found to increase learner learning outcomes in the setting of health education (Huang et al., 2020). It also aids in the enhancement of experiences and the improvement of learning (Harun et al., 2017).Cognition and satisfaction (Huang et al., 2020; Ghoneim and Badawy, 2018) and helps learners to engage and interact with each other (He et al., 2019).Others, on the other hand, have claimed that the flipped learning strategy has improved learner engagement and strengthened medical knowledge, critical thinking, medical reasoning, and scientific inquiry while reducing students' extracurricular load (Duijn et al., 2018; Park and Park, 2018).

Lag and Saele (2019) defined flipped learning approach as a learning model that takes teacher-centric learning out of the schoolroom and frees up schoolroom time for more student-centric learning activities. They summarized the flipped learning instructional model in which learners traditionally incorporate activities outside the schoolroom (e.g., problem-solving exercises) into a schoolroom session, but what is traditionally done in the schoolroom (e.g., expository, informational teaching) is done before and after the lesson. The lecturer during flipped classrooms isn't any anymore the "speaker" on stage, but rather the "controller" or "coordinator" of the students (He et al., 2019). The power of Internet-based teaching outside the classroom (for example, digital video, self-regulated education, virtual discussion) and face-to-face (e.g., cooperative learning, hands-on problem-solving, teacher and peer meeting) has been described in previous studies as follows: a retrospective education model that efficiently increases learner engagement, improves learner achievement, and strengthens the growth of creative thinking (He et al., 2019; McLaughlin et al., 2014; Persky, Persky, & Pollack, 2010; Pollack, 2011; Eddy & Hogan, 2014). Learners can watch selected virtual movies based on their level of expertise, but they can also freely reenact original and difficult information using the flipped learning approach. In the classroom, the instructor and students have adequate time to discuss one-on-one.

Learners are asked to participate in group discussions throughout class time to strengthen their knowledge of integration and application, which is regarded an important part of developing learners' grasp of course core concepts (Vliet, Winnips, and Brouwer, 2015; He et al., 2019).Previous studiesclaims that by applying the flipped learning paradigm, learners can engage in more difficultand complicated taskswhereas receiving timely teacher feedback (Thai et al. 2017). Flipped learning approach allowsinstructor to promote critical thinking for their learners, strengthen lifelong education, and prepare upcoming graduates for their future job (O'Flaherty and Phillips, 2015; Akçayır and Akçayır, 2018). The flipped learningmethodinspireslearners to work self-sufficiently to learn the fundamentals and ideas outside the schoolroom. This includes reading, completing academic modules online, and viewingfilmedclasses (Bergmann, Overmyer, and Wille, 2016; Connor et al., 2019; Davies, Dean, and Ball, 2013). Currently, flipped learning approach has been used to enhance learner communication and engagement in learning activities (He et al., 2019; Thai et al., 2017). According to the literature, a flipped learning strategy can improve self-learning, critical thinking, attitude, group involvement, achievement, interest, motivation, and possibly learner enjoyment (He et al., 2019; Jdaitawi, 2020; McLaughlin et al., 2014; Akcayir and Akcayir, 2018; Connor et al., 2019; Eddy and Hogan, 2014;Yacout and Shoha, 2016).

Health teachersconsider that a flipped learning method values the learning experience and participation through active learning (Galway et al... 2014). However, not all learners may find it useful. Since flipping requires strong self-learning skills, particularly in the before and outside the class, active learnerappear to gain more benefit from this method, whereas passive learner may find this approach unnecessary for their education needs (Lee et al. al., 2017). Pervious studies suggest that a flipped learning approach can enhance education experiences and education activities (Park and Park, 2018; Bansal, et al., 2020; Yacout and Abou-Shosha, 2016). Although such learning approaches are clearly invaluable, there is still a lack of dedicated studies and a few report mixed results on the effectiveness of the intervention (Galway et al., 2014; Vliet et al., 2015; Naing et al., 2019). Consequently, additional research is needed to investigate the effectiveness of flipped learning approach in medical school research and to systematically review the literature on the use of technology in educational settings. (Niang et al., 2019; Sandrone et al., 2019). Such systematic reviews are lacking, although they are necessary to measure the effectiveness of new learning trends, especially in the field of health education (Niang et al., 2019; Sandrone et al., 2019). Therefore, this study expanded the literature on knowledge-based flipped learning methods by analyzing research on health education research in courses using English as the medium of instruction through various databases. Flipped learning approach in health education is explored to answer the following:

1. What abilities are acquired through the use of flipped learning in health education?

2. What are the most common educational levels used in flipped learning in health studies?

3. In health education, where is the flipped learning technique most commonly used?

4. What are the benefitsof using a flipped learning method in research on health education?

5. What are the difficulties of using a flipped learning strategy in health education research?

2. Methodology

2.1. Research Goal

The majority of the literature has focused on assessing the efficacy of the flipped learning approach in health education; however, studies that examine the determinants of the flipped learning approach are uncommon. In this context, the current study used a systematic literature review to examine the role of flipped learning in health education, as well as the benefits, limitations, and effectiveness of reverse learning in a similar framework.The investigation of the several categories focuses on emerging trends, opportunities, and challenges, as well as the volume of literature and visions related to the goals and results of future use.

2.2. Sample and Data Collection

The research was based on Arksey and O'Malley (2005) and Kitchenham's (2004) four-stage systematic review, which covered the following stages: identifying trends in flipped learning studies in health education between 2015 and 2021 - the first stage detected trends in flipped learning studies in health education between 2015 and 2021. (e.g. Niang et al., 2019; Sandrone et al., 2019; Galway et al., 2014; Vliet et al., 2015; Turnbull, Docherty, and Zaka, 2017).

In their research, Kitchenham's (2004) and Arksey and O'Malley (2005) were used to develop research questions and research objectives. The study conducted a comprehensive and rigorous systematic review to identify trends in health education research. Articles from ScienceDirect, Scopus, Elsevier, and ISI were reviewed. "Flipped learning" was the keyword used to search the above database. Selection of Studies - From the database, 16 studies were selected that were suitable for the study based on the clear results, explanation of technologies, variables and presentation of results. The study was detailed and categorized based on author's name, learning level, variables and research findings. Conclusions and Discussion - This step was to address the research questions which are: First, what abilities are acquired through the use of flipped learning in health education?Second, what are the

most common educational levels used in flipped learning in health studies? Third, in health education, where is the flipped learning technique most commonly used? Fourth, what are the benefitsof using a flipped learning method in research on health education?Last,what are the difficulties of using a flipped learning strategy in health education research?

3. Result and Discussion

To discuss the results, this study poses a question, "what abilities are acquired through the use of flipped learning in health education?"Table 1 lists the use of the flipped learning strategy in health education as a result of the Health Education study's findings. (Harun et al., 2017; Huang et al., 2020; Ghoneim and Badawy, 2018; He et al., 2019; O'Connor et al., 2016; Nahar and Chowdhury, et al., 2019; Gopalan, 2019) found that flipped learning techniques improved a variety of educational skills among health learners, including performance, attitudes, learning outcomes, personal and intellectual skills.The table shows that 18 educational skills usually stated in the majority of the studies (47%), which goes with the efficiency of flipped learning approach in developing health education among learners. There were 7 studies (41.20%) supporting the contribution of flip learning technique to intellectualability, second after the most common contribution of flip learning technique.When it comes to soft skills improvement, two studies (11.80%) found that a flipped learning approach contributed to this. However, the findings revealed that an inverted learning strategy improved many learners' skills (Huang et al., 2020; Nahar et al., 2019; Angadi et al., 2021; Ghoneim et al. 2018; He, 2019; O'Connor, 2016).

Because the flipped learning technique is now widely employed in health education, the reason for the results could be related to the importance of technology in school life. It also appeals to students since the flipped learning technique engages, motivates, and allows them to interact with the material, become active throughout the session, and comprehend the topic (Castedo et al., 2018; Jo et al., 2018; Gren, 2019; Yoon, 2020; Hussain et al., 2020;Fung, 2020;Baughman et al., 2019). It also shows that flipped learning approach has a positive effect on learners' abilities, confirming that it is one of the desiredapproaches of teaching and learning. In addition, Huang et al. (2020) found that flipped learning enhances not just medical learners' learning outcomes, but also their perspective and pleasure.As a result, it was established that the information and knowledge of learners can be improved by applying flipped learning approach to the learning process. The results can be traced back to the usage of flipped learning techniques in English-medium coursesand health education. It changes practice to enable optimal performance and understanding of materials in this area and improve critical thinking skills, involvement, and interaction (He et al., 2019; Ghoneim and Badawy, 2018). It helps you acquire various skills. He et al. (2019) report that an effective

strategy for completing a given task is to provide positive feedback, motivate learners to learn for themselves, and practice their skills better.

Researchers studying non-learning consequences,for example, academic and individual skills were also assessed using similar research designs that study learner learning outcomes. In this regard, Ghoneim and Badawy (2018) compared learners 'high-level thinking skills and their participation in learning flipped design before and after testing, and found that flipped class models resulted in learners' higher Improved systematic thinking skills and engagement. In another study, Nahar and Chowdhury, et al. (2019) used a flipped learning approach and found that flipped learning approach improves learners' satisfaction and their interaction with teachers. Indeed, previous literature (e.g. Bansal et al., 2020; Park & Park, 2018; Yacout and Abo-Shosha, 2016) suggests that flipped learning approach is a conceivable resource in health education and one of the innovative methodswhich has the potential to be involved by delivering more detailed data that enhances knowledge and enhances learner engagement and intellectual abilities (Park and Park, 2018; Yacout and Abo-Shosha, 2016; Gopalan, 2019).

Table 1. Summary of studies on the use of flipped learning approach in health education

Skills	Authors	Variable	Finding
Academic	Huang et al. 2020	Higher-order thinking and active learning	Promote active learning and maximize higher order thinking among learners
	Nahar et al. 2019	Learning activities	Improved learning activities among learners
	Girgis and Miller 2017	Education activities in neurosurgery education	Enhance learnersactivities
	Park and Park, 2018	Active learning in nursing courses	Improve student's achievement, enhance critical thinking and creativity.
	Gopalan 2019	Performance and perception	Promote positive perception and enhance learners' performance
	Bansal 2020	Performance	Improved learners' performance in medical education
	Angadi 2021	Performance and perception	Promote positive perception and enhance learners' performance

	O'Conner 2016	Achievement motivation and enjoyment	Improve achievement motivation and enjoyment level
Personal	He 2019	Performance	Enhanced learners' performance
	Tahseen et al. 2019	Feedback and satisfaction	Enhanced learners' satisfaction
Intellectual	Harun 2017	Acceptance	Positive acceptance
	Chen et al., 2017	Knowledge retention	Enhanced student's knowledge retention
	Gohneim and Badawy 2018	Higher order thinking and engagement	Improved learners higher order thinking and their engagement
	Allenbauoh et al. 2018	Course preparation	Increase in preparedness
	Riley 2019	Attitude	Promote positive attitudes
	Yacout 2016	Learnersperception	The flipped learning approach enhance learnersperception

The second research question asks “what are the most common educational levels used in flipped learning in health studies?” Also, Table 2 reveals that fourteen (82.35 %) of the flipped learning approach studies were undertaken at the postgraduate level, followed by three master's and doctoral studies (17.64%).The purpose of flipped learning approach is to motivate learners, explain things, and increase their involvement in learning experiences and activities. Computer-assisted instruction is an effective method available in higher education during the academic year, as many teaching and learning sessions are based on hands-on instruction. Availability of time and activities in the schoolroom is another possible reason to help learners increase their chances of implementing flip learning technique in their undergraduate courses. In higher education, such as master's and doctorate courses, however, research on the application of flipped learning and its benefits is still limited.

Limitations could be due to time constraints or a lack of maturity, therefore there is a need to encourage graduate students over voluntary students. As a result, the goal of this research is to see if flipped learning is effective for master's and doctorate students in the field of health education.

Table 2.A summary of health education samples that used flipped learning.

Level of education	Number of studies	Percentage
postgraduate	14	82.35%
Higher education(Master & PhD)	3	17.64%

Next research question was, "in health education, where is the flipped learning technique most commonly used?" and based on Table 3, multiple flipped learning approach studies were conducted 5 studies on the medical science (29.30%) and this is followed by nursing 3 studies (17.65%), Pharmacy 2 studies(11.75%), and Cardiology (5.90%), Neurosurgery (5.90%), Ophthalmology (5.90%), anesthesiology (5.90%), Public Health (5.90%), Osteopathic (5.90%), and Radiology (5.90%). The objective of a flipped learning approach model, in all of the above aspects, is to improve learning outcomes and experiences, to encourage learners, to explain things to them, and to improve their educational experiences and participation in learning. Several educational sessions rely on hands-on assistance, and computer-assisted command is a cost-effective approach that might be used in higher education across a wide range of fields.

Table 3. Specializations employed in the flipped learning approach for health education.

Sample	No.	Percentage
Medical	5	29.30%
Nursing	3	17.65%
Pharmacy	2	11.75%
Public Health	1	5.90%
Cardiology	1	5.90%
Neurosurgery	1	5.90%
Ophthalmology	1	5.90%
Anesthesiology	1	5.90%
Osteopathic	1	5.90%
Radiology	1	5.90%

The fourth and fifth questions concern the benefitsand difficulties of flipped learning approach in health education research. The study's findings reveal that learners prefer

the flipped learning approach to learning over the traditional model. Though, the use of flip learning technique in health education has improved a wide variety of learner learning skills, with their learning results, academic achievement, attitudes, individual and intellectual skills (Hunag et al., 2020; Nahar et al., 2019; Angadi et al., 2021; Ghoneim et al., 2018; He, 2019; Oconner, 2016). The benefits of flipped learning include limitless access to course materials, which allows students to learn anywhere and at any time (Hew and Lo,2018). Another advantage also associated with flipped learning approach is helping learners explore pre-class topics that affect their learning and knowledge (Hunag et al., 2020; Nahar et al., 2019) it also helps to understand new information better. Bielsen (2020) mentioned that instructors can use the flipped learning strategy to empower learners' learning and modify their study habits, among other benefits.

This was also proved by Nahar and Chowdhury et al. (2019), who said that a flipped learning strategy promotes student interaction with their teacher and classmates in the classroom. According to Jdaitawi (2020), the flipped learning strategy helps learners improve their connectivity and create leisure attitudes. Beyond this study, Gopalan (2019) also confirmed the fact that flipped learning approach helps learners participate in learning and improve their academic performance by increasing their positive motivation and attitudes towards courses. Flipped learning approach boostslearners to develop their individual skills, improve interactions and motivation (Gopalan, 2019; Bielsen, 2020; He et al., 2019).

Regarding the challenges of flipped learning approach technology, most literature (e.g., Akcayir and Akcayir, 2018; Lo et al., 2017; Van-Alten, Phielix, Jansse, and Kester, 2019) approved that the difficulties in flipping the schoolroom. There are several, and they can be personal, institutional, technical, or non-technical in nature (Gardner, 2015). A further stumbling block is the evaluation procedure (Barral et al., 2018; Bielsen, 2020). Due to a lack of assessment connected to self-assessment and meta cognition, according to Nielsen (2020), learners do not pay enough attention to their self-assessment and self-regulation in relation to flipped learning. Students, attitudes, perspectives, and educational methods are also mentioned as limitations in the literature, because learners must understand the flipped learning strategy (Peterson, 2016).

Because it is linked to the machinery employed, designing flipped learning approach tasks is a significant difficulty. Logistics presents a further hurdle in the form of partial data, as well as time limits, as learning takes time (Jdaitawi, 2020; Yacout and Abou-Shosha, 2016). The literature also reports technical challenges, as technical support plays an important part in ensuring or confining the significance of flipped learning approach (Wells and

Holland, 2015). The length of the video and the time it took the student to internalize the course material were different issues in the flipped learning approach, which required suitable mechanical help to make content delivery easier (Velegol et al., 2015; Koo et al., 2016).Additional possible limitation may be associated to the accessibility of tools for measuring flipped learning. And finally, because there are many theoretical courses, flipped learning approach is the recommended technique for these hands-on courses.

4. Conclusion

The spread of flipped learning approach has only just begun in the previous few decades to provide medical learners with scientific information and a curriculum. This study undertakes a systematic review to determine whether or not to use the flipped learning technique from the learners' perspective, to highlight the benefits and disadvantages of the approach, and to minimize the numerous limitations and challenges that flipped learning presents.It also provides data to understand the mannerflipped learning approach could minimalist the different challenges and limitations that learners face when they apply a flipped learning approach. A literature review on the use of flipped learning approach has revealed a total of 16applications, and the studies are consistent in emphasizing the active role of flipped learning approach in health courses with English as the medium of instruction at different levels (undergraduate, Master's, and Ph.D. learners). The studies show that a variety of technologies are used, including computers, laptops, and mobile devices. They've demonstrated that flipped learning improves learners' skills and results in better learning outcomes.

5. Recommendations and Limitations

This study, like other studies, has some limitations because most of the studies did not inspect the effects of learner individualities that should be studied in future research. Small samples of people were also utilized in the majority of the investigations.Soit is recommended for future studies to consider larger models to validate the results. Additional limitation concerns the data collection methods that must be considered in future studies to apply other methods. In this systematic review, ideas and solutions were presented on how learner performance in health classes can be improved through definitive learning strategies.

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